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FEB 22 2007

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REMARKS

Applicants respectfully request that the amendment be entered in the specification. The amendment to the specification is of an editorial nature to correct a typographical error which occurred during preparation of the application. The two different peel strengths for the combination of the epoxy and Versamid 225 are not correct in view of the fact that one of the epoxy resins was Chem-Res E 50. This is shown in the original German application on which the present application is based. Applicants therefore respectfully submit that no new matter is entered in the application by amendment to the Table at page 15.

The present invention is directed to a method of coating a glass substrate and a coated glass fiber prepared by the method.

The novelty of the invention is a process which uses a novel coating composition the process comprising:

(a) providing a glass substrate;

(b) applying to the glass substrate a coating composition comprising:

- (1) from 1% to 98% by weight of a solventless, epoxy resin, reaction product of epichlorohydrin and at least one component selected from the group consisting of bisphenol A and bisphenol F, which reaction product is liquid at 20°C;
- (2) from 1% to 98% by weight of a water-dilutable epoxy resin hardener;
- (3) from 1% to 98% by weight of water; and
- (4) optionally additives; and

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(c) curing the coating composition.

Applicants respectfully submit that the prior art references cited by the Examiner neither teach nor suggest applying to the glass substrate a coating composition containing a solventless, epoxy resin reaction product of epichlorohydrin and at least one component selected from the group consisting of bisphenol A and bisphenol F which reaction product is liquid at 20°C; from 1 to 98% by weight of a water-dilutable epoxy resin hardener; and water. Applicants therefore submit that the claims as presently in the application are in condition for allowance and favorable consideration is requested.

Claims 1, 4-6 and 8-12 stand rejected under 35 USC 103(a) as unpatentable over Nakamura et al. (US 5,633,042; hereinafter Nakamura) in view of Hoefer et al. (US 2004/0087684 A1; hereinafter Hoefer '684) or Hoefer et al. (US 7,094,816 B2; hereinafter Hoefer '816). Applicants respectfully submit that Nakamura, Hoefer '684 or Hoefer '816 whether considered alone or in combination neither teach nor suggest the present invention.

Nakamura discloses a process for manufacturing prepregs for use as an electric insulating material. Nakamura does not teach or suggest the nature of the epoxy resin but at col. 29, lines 10-24 discloses epoxy resins which can be formed from bisphenol A and bisphenol F. Nakamura is deficient in neither teaching nor suggestion that the epoxy resins be liquid at 20°C.

The epoxy resins utilized in the Nakamura process are materials which must be heated to elevated temperatures in a range of 60 to about 105°C (to be have a sufficiently

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low viscosity that can be impregnated into the glass cloth substrate). As stated in the claims, the thermosetting resin composition containing no solvent in a molten state is utilized in impregnating the glass cloth substrate.

The molten condition of the epoxy resin is also necessary to provide for mixing with the master batch of the primary mixture, the dicyandiamide and hardening promoter. The preparation of the master batch is disclosed at col. 7, line 53 through col. 28, line 67. The Nakamura process requires that the epoxy resin and the master batch along with the hardener be prepared at an elevated temperature and permitted to remain under a vacuum to remove any gas bubbles which may have been incorporated into the composition during the mixing steps. The requirements of the heating, mixing, deaerating steps of the Nakamura process provides a process which is complex and requires precise temperature controls to prevent premature polymerization of the epoxide and yet provide a sufficiently low viscosity to permit mixing, deaeration and impregnation of the glass cloth fiber substrate.

Nakamura is also deficient in neither teaching nor suggesting a composition containing a water-dilutable epoxy resin hardener and water. As set forth in the Nakamura reference, the hardener generally has a softening point in the range of 70 to 100°C and the mixing of the hardener components and the accelerator with the epoxy resin must be carried out at the elevated temperature and the mixture applied at an elevated temperature to permit penetration of the composition into the substrate being impregnated. Applicants respectfully submit that Nakamura would neither teach nor suggest to one skilled in the art

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to utilize an epoxy resin which is liquid at 20°C in admixture with water and a water dilutable epoxy resin hardener.

The deficiencies in Nakamura are not cured by combination with Hoefer '816. Hoefer '816 is directed to a water-based coating composition comprising (a) from about 0.5 to about 90% by weight of at least one epoxy resin, wherein the epoxy resin is solid at 20°C, and wherein the epoxy resin is self-dispersing in water, and (b) from about 0.5 to 90% by weight of at least one (meth)acrylate of a polyol; and (c) from about 5.0 to 99% by weight of water; wherein the at least one (meth) acrylate comprises at least two (meth)acrylate groups per molecule, and wherein the Brookfield viscosity of the composition is less than 15000 mPas. Since Hoefer' 816 requires that the epoxy resin be solid at 20°C, it would not cure the deficiencies in the teaching of Nakamura which also utilizes a resin which must be heated to an elevated temperature to melt and to provide a mixture with a sufficiently low viscosity to enable impregnation of the fiberglass substrate. Applicants therefore respectfully submit that Hoefer '816 in combination with Nakamura would not lead one skilled in the art to the present invention.

Hoefer '684 when combined with Nakamura alone or further in view of Hoefer '816 neither teach nor suggest to one skilled in the art a method and product of the present invention.

Hoefer '684 is directed to a functional coating composition with good leveling and insulating properties. The composition contains an epoxy resin which is liquid at 20°C comprising a reaction product of epichlorohydrin and bisphenol A or bisphenol F; a water-

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dilutable epoxy resin hardener, fibers; a filler and water. The composition can contain up to 70% by weight of other additives and/or processing aids. Applicants respectfully submit that Hoefer '684 in combination with Nakamura or Nakamura in view of Hoefer '816 is not related to the present invention.

Although Hoefer '684 utilizes a composition similar to the composition useful for coating glass disclosed in the present application, it does not disclose or suggest it as being useful for coating glass. The Hoefer '684 composition is disclosed as a paint or coating composition and their uses as insulating and leveling compounds. The Hoefer '684 composition contains a filler in amount of 5 to 70% by weight and from 0.1 to 10% by weight of fibers. The composition can contain up to 20% by weight of water but water is not a required component in the insulating and leveling composition disclosed in Hoefer '684.

The fibers are included in the composition to enhance the physical properties of the cured resin. The fibers are organic fibers as described at page 6, paragraph [100]. The fibers useful in the practice of the invention are described as elongate aggregates of which the molecules (or crystallites) are parallel throughout in longitudinal direction of the molecule (or a straight lattice line). Fibers are either thread-like structures of limited length (single fibers or hairs) or substantially endless fibers (filaments) either individually or in bundled form. Applicants submit that the description of the fibers as elongate aggregates of which the molecules (or crystallites) are parallel throughout in longitudinal direction of the molecule (or a straight lattice line) describes organic polymers in the fiber or filament form. One skilled in the art would understand that glass fibers are amorphous structures in

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which the molecules are not aligned as in the organic fiber structures.

Rather than coating a fiber, the fibers are incorporated in the bulk of the composition in a small amount to improve the properties of the cured resin. The fibers are present at a maximum of 10% by weight of the composition and preferably in the range of about 2.5% by weight of the composition. As one skilled in the art would understand, a glass fiber coated with the resin of the present invention would have a composition in which the glass fiber comprised more than the 10% by weight of the coated fiber.

Applicants respectfully submit that there is neither teaching nor suggestion in Hoefer '684 for utilizing the coating composition containing fibers to coat a glass fiber. The Hoefer '684 composition when cured cannot be considered as coated glass fibers since glass fibers are not disclosed in the references. Applicants therefore respectfully submit that Hoefer '684 and Nakamura whether considered alone or in combination with Hoefer '816 neither teaches nor suggests the present invention.

The Examiner notes that claim 6, 8, 10 and 12 are product-by-process claims which require that the product be distinguished from the prior art rather than by the process by which they were formed. Applicants respectfully submit that claims 6, 8, 10 and 12 are neither taught nor suggested by the prior art references since there is neither teaching nor suggestion to utilize the composition of the present invention to coat glass.

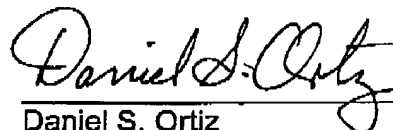
It is clear that the composition of the present invention is different from the composition of Nakamura or Hoefer '816 since they are based on different epoxy resins. Hoefer '816 is based on an epoxy resin which is solid at 20°C. Nakamura is directed to

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epoxy resins which are also solid at 20°C and are required to be mixed and applied at elevated temperatures to impregnate glass fiber clothes. Applicants respectfully submit that since different epoxy resins are utilized in forming the compositions, the product of polymerizing the different epoxy resins would provide different cured polymers. Applicants therefore respectfully submit that the products described and claimed in claims 6, 8, 10 and 12 are different from the cured polymers disclosed in Hoefer '816 and Nakamura and therefore are not taught or suggested by the references.

The Hoefer '684 reference does not teach nor suggest glass coated with the composition of the invention since the composition of Hoefer '684 is an insulating or self-leveling coating composition and is neither taught nor suggested as useful for coating glass. Applicants therefore respectfully request reconsideration and allowance of claims 6, 8, 10 and 12.

Respectfully submitted,



Daniel S. Ortiz
(Reg. No. 25,123)
Attorney for Applicants
(215) 628-1141

Cognis Corporation, Patent Dept.
300 Brookside Avenue
Ambler, PA 19002

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